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**Couture et al.**

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(54) **PATIENT SPECIFIC INSTRUMENTATION (PSI) FOR ORTHOPEDIC SURGERY AND SYSTEMS AND METHODS FOR USING X-RAYS TO PRODUCE SAME**

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(57) **ABSTRACT**

A method of creating a patient specific instrument (PSI) for use in knee replacement surgery is described which includes performing at least two X-ray scans of a bone, each of the X-ray scans being taken from different angular positions, generating a digital bone model of the bone based solely on the X-ray scans, planning the PSI based on the digital bone model, including determining locations for one or more anchor points on the PSI which are adapted to abut a surface of the bone, the determined locations of the anchor points being disposed on the PSI at locations corresponding to areas of expected high accuracy on the digital bone model generated by the X-ray scans. The areas of expected high accuracy include at least a peripheral bone contour in at least one of the angular position of the X-ray scans. A suite of such PSI instruments is also described.

**9 Claims, 13 Drawing Sheets**

